

Canal Zone Notes  
Book #5

#5

Wireless St.

Crooks

Longue

U. S. GEOLOGICAL SURVEY

GEOLOGIC BRANCH

LOOSE-LEAF FIELD NOTEBOOK



Canal Zone Notes  
Book #5

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Top of the hill is a  
formation of material about 10 ft  
thick. It is a very hard  
material. The top of the hill is  
about 10 ft above the water level.  
The top of the hill is about 10 ft  
above the water level. The top of the  
hill is about 10 ft above the water  
level. The top of the hill is about 10  
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about 10 ft above the water level.

The section is  
a very hard material. The top of the  
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about 10 ft above the water level.



Referred by the nature of accumulation  
 these are scattered in layers of the  
 fine clayey sandstone and are of a  
 color lighter than the surrounding  
 matrix.

(5+614)  
 $\frac{1}{4}$  of a mile S of the above  
 contact find being some micaceous with  
 with fossils. Argillaceous, bluish, and  
 a pale red. Shows many beds of  
 seemingly laminated structure as  
 when top surface is seen.

51 615 Just below the above  
 all clayey but with some  
 micaceous sandstone and clay  
 in some very fine but much  
 very irregularly  
 broken up for some distance  
 probably a mass of sandstone  
 composed of thin layers of sandstone  
 very fully bedded and a little

bedded with the dark gray sandstone  
 with micaceous are beds of lighter  
 gray sandy limestone where the micaceous pebbles  
 and exhibits in an irregular way  
 shows the bedding blue about 15 to 20 ft in  
 all the pebbles and shales &  
 boulders are more or less from greenish  
 bluish and sandstone. The fossils are  
 coarse in texture but not so much  
 as found in railroad cut S. of Baker

629 from top of road was in digging at  
 a disconformity

about 134 feet from wall of road  
 near a fault and some fossils were  
 small just like the ones above  
 61110

61111 Lighter colored limestone and sandstone  
 with many small pebbles. The  
 more or less irregularly bedded and  
 somewhat micaceous. The fossils  
 consisted of a few small, almost all rounded  
 from a mountain and a few  
 brachiopods, a few small

61112 Sandstone with small pebbles  
 fossils  
 small, rounded, and a few



675 Peculiar lens as wedge of  
dark fine carbonaceous tuff here  
similar to tuffs above. Miniflow  
locks about 50 feet thick  
shows some with clean shells  
(unius) same <sup>dark</sup> gray tuff conglomerate  
on both sides

679 approx mostly highly weathered  
vitrified tuff masses not  
showing any bedding the  
mass is shakable

682 fine tuffs etc

Faceted limy tuff

780 rocks dip S 35° Below  
conglomerate go down here

May 2ed went up Chigpas  
to alluvial

May 3ed went out to see natural bridge  
at La Puente Followed trail and  
found Gatum and Fort Laurens rocks  
out to first Savanna about 3 miles out  
Then changed off on other trail and found  
old andesites cutting newer andesites

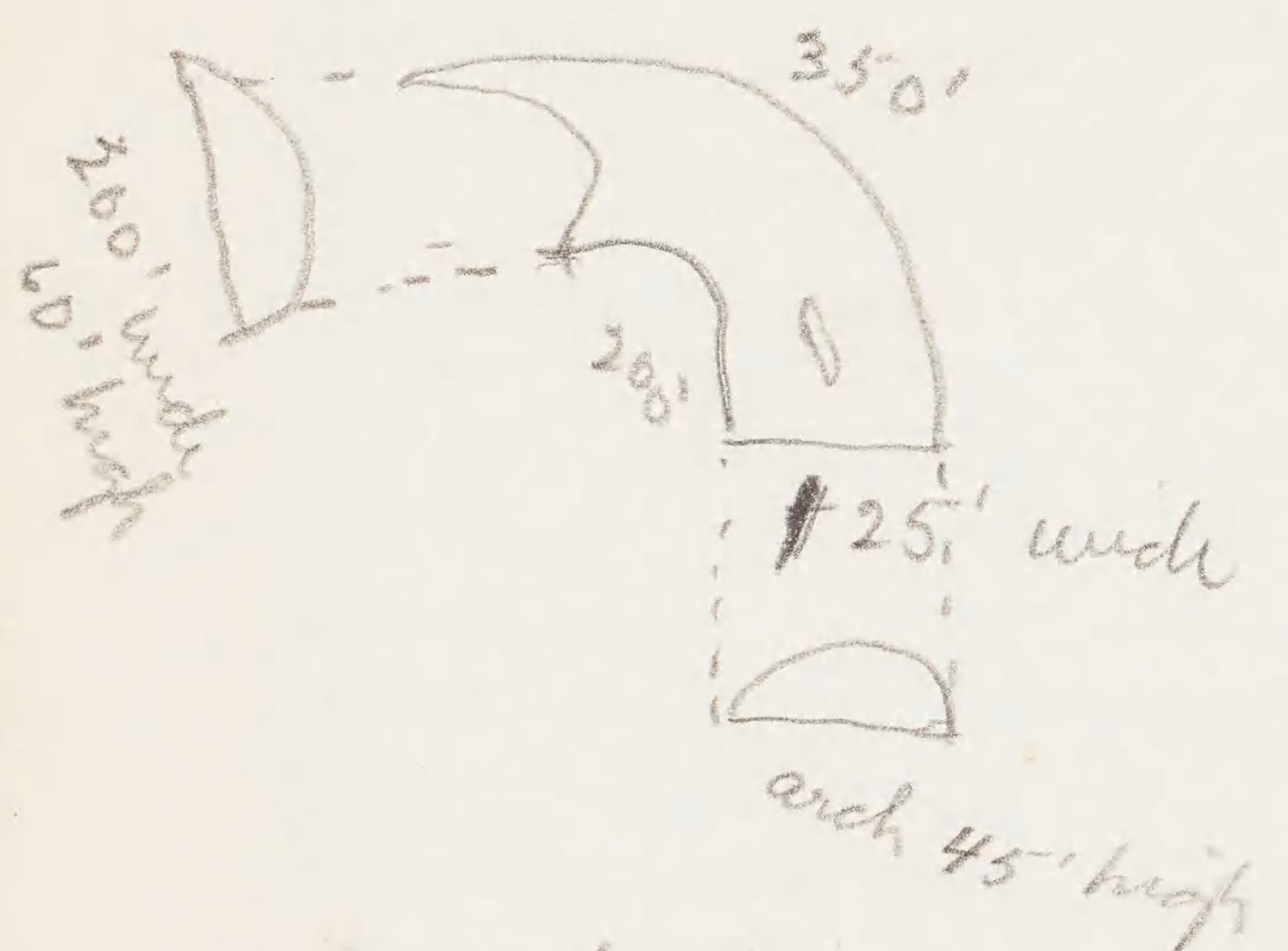
Quibridge ~~Del~~ Del Lion creek about  
200 yards before reaching this Fort  
Laurens limestone comes in again

Limestone all around here and up  
alluvial has very little soil on it  
The savannas seem blue due to newest  
andesite cutting older andesites and  
limestone Sample of earth taken  
from 1st and 2nd Savannas also  
from what appears to be old andesite  
ground outside of the savanna In  
the latter place soil supports fairly  
heavy growth of small timber and  
vines

Limestone extends from Del Lion Creek  
for about a mile then volcanic basic  
rocks ~~cut~~ show in several places where  
there are savannas. Part of these savannas  
are of limestone but these seem to



be the case only around certain edges. Some volcanic islands at intervals 5 within 14 miles of La Puente  
 natural bridge on La Puente  
 river



Arch dissolved out of the coral limestone found all down river from where trail crosses and back  $1\frac{1}{4}$  miles on trail from river. This limestone locally shows water deposition and micropathophora on quite a large scale. Specimens

May 4th Collected fossils as follows

- #1 Across Chagres river opp alhajuela  
 limy tuffs of gray color very massive  
~~mostly~~ Mostly pectens? This rises about 200 or 225 feet above the river
- #2 Taken  $\frac{1}{2}$  to  $\frac{1}{4}$  mile above alhajuela and as the rocks along alt. there dip say 5° down river these fossils must be about 300 feet lower down. Stratigraphically than those in #1. Rocks about the same grey massive limy tuff & limestone. Here many large double ribbed pectens come in
- #3 50 to 75 feet below #2 see notes
- #4 In sac good gray limestone with some little tuff. Sandstone like largely finely divided shell and coral fragments. Many ~~pectens~~ and pectens(?) with large ribs also many masses of large flat double ribbed pectens.
- #5 In is say say 25 feet or so below #4 Very hard rather creamy limestone which has been dissolved by the river into many odd shapes and its surface in contact with the water is in minute little ripples. Bed of large septa







up the hill. The top of the hill is covered with a thick growth of brush and trees. The hill is about 100 feet high and is situated on the edge of the plateau. The hill is covered with a thick growth of brush and trees. The hill is about 100 feet high and is situated on the edge of the plateau.

At 11:00 on the plateau (about 1000 feet above sea level) there is a small hill. The hill is covered with a thick growth of brush and trees. The hill is about 100 feet high and is situated on the edge of the plateau. The hill is covered with a thick growth of brush and trees. The hill is about 100 feet high and is situated on the edge of the plateau.

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Continued 9/14  
 Start in low level - tuff to sand  
 50 ft. from base of section  
 level 100 ft. to 120 ft.

9/15 10:00 AM  
 Sand - white - tuff to sand  
 level 100 ft. to 120 ft.  
 level 120 ft. to 140 ft.

Maybe to Point Barrow  
 Crossing is still to east of Point Barrow  
 where it is sand on beach  
 Sample for analysis  
 Locally shows cross-bedding, as seen  
 along shore, about 100 ft. from  
 shore, this is almost certainly  
 enough to take for an unconsolidated  
 but at bottom it is just due to former  
 wave action on level floor before final  
 uprise

Locally lenses of conglomerate which  
 in this formation. These are 3 or 4 ft.  
 to 10 ft. thick and not very extensive  
 locally

from 100 ft. to 120 ft.  
 113 Point Barrow



(2) about 5 feet above present  
shore level - large swampy  
areas here as at Mount Hope  
and Mudi

(3) about 50 to 55 feet above  
present sea level as on top  
of present low ridge now  
being quarried

Locally out around shore cliffs  
some of this material looks  
gray and somewhat sandy not  
much unlike the gatin formation  
but certainly more limy

Feb 8th 1912

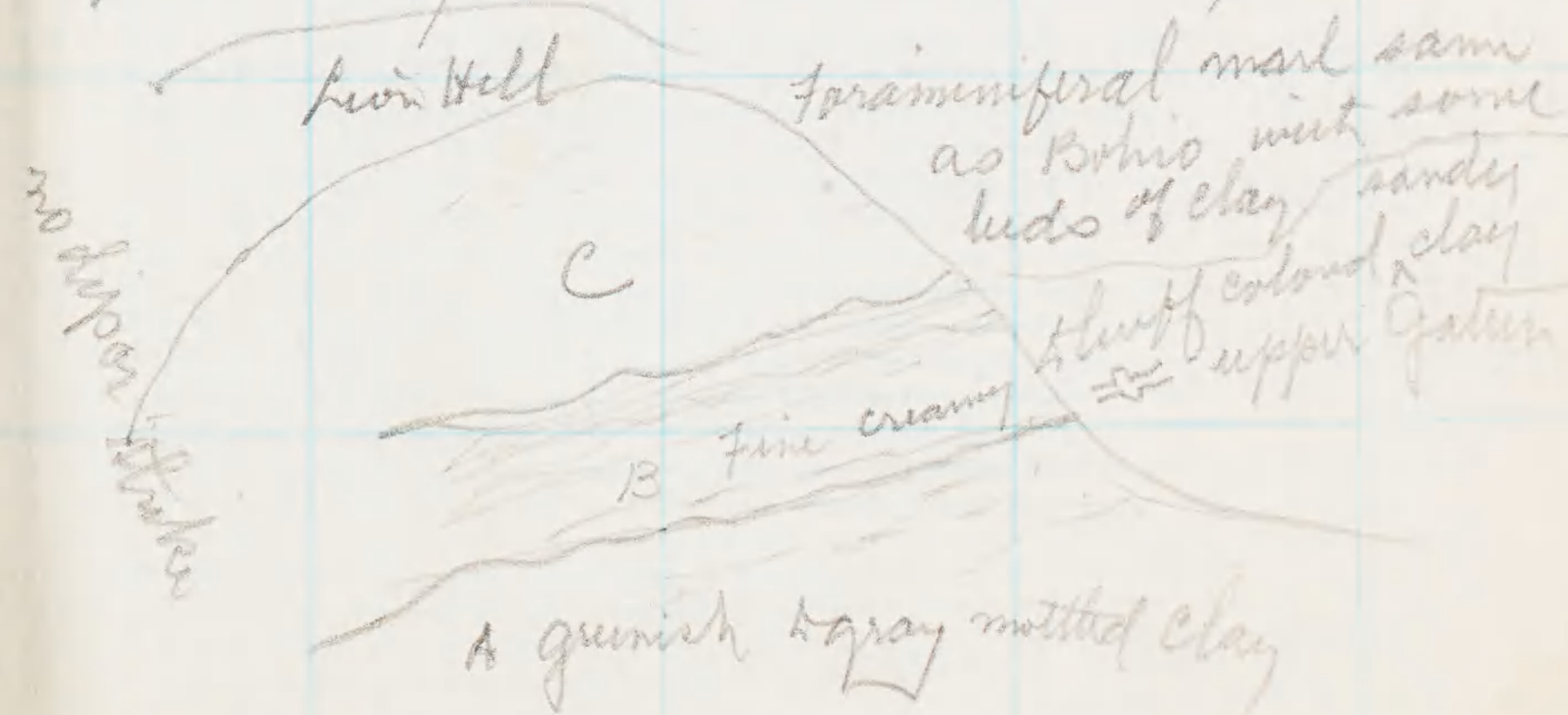
Got off train at Ahaua Lagorta  
and followed railroad to Gatin

Some cuts up to 6 feet deep just S  
of Ahaua Lagorta show nothing but  
thiocornish soil no rock

Southern edge of Lion hills just  
N of Black swamp track show  
volcanic looking basic light-gray  
to greenish clay with mottled iron

Sp. oxide spots. This clay is in  
ditch 3' below surface and is  
plastic to touch

Lion Hill found trail up side of it  
partway then climbed it top





Spec 298?

Spec 298?

Spec F from 1000 ft  
 2nd curve  
 from bridge  
 straight away.

Foraminiferal sandstone is  
 dips southward say 8°  
 all the below may be more or less  
 interrupted

- 4 Fine foraminiferal sandstone  
 basic and somewhat decomposed
- 3 Dark basic coarse foraminiferal  
 sandstone (Bates)
- 2 Light gray, light buff white clayey  
 sandstone beds
- 1 Fine basic agglomerate material  
 in sandstone fragments, some  
 cherty and are decomposed

2 Fine conglomerate material 5 ft. thick

There is a transition from  
 sandstone into sandstone with flat  
 basic particles and finally down  
 volcanic agglomerate this is  
 shown at corner of hill where  
 cut is

on top of this is  
 sandy clay than some foraminiferal  
 sandstone and marl beds. Some  
 of the beds immediately on top of this  
 are very light colored near their  
 outcrop.

Rocks here dip toward E. about  
 due N at very E. N. 9°

Succession today might be called  
 foraminiferal sandstone section



Feb 9th Trail to Bohio thru marked ridges  
near Ahorra Lagarta

Ridge just south of Ahorra Lagarta is  
light colored limy ~~material~~ sandstone  
locally quite hard. Bedding nearly  
horizontal.

By following up this ridge towards east  
find light colored limy sandstone all the  
way to top P.B.M. 14A El 134.233

Ridge just north from Bohio is  
all conglomerate

Coarse brown conglomerate <sup>rounded</sup> ~~angular~~ and  
sub angular boulders <sup>pebbles</sup>  
1st cut on right <sup>looking</sup> ~~view~~ from Arica junction







Cores from Dock hearings Hallina  
dry dock 7C

Centre Line of Dry Dock

EL +24 Rock +23 Depth -15

A hole same as hole E

EL +19.6 Rock +4.4 Depth -8.6

B hole same as C and much decomposed.

EL +19.1 Sand depth 15.1

C hole Rock +12.1  
all very dry and hard same  
as on top of core - some holes  
just below surface

bottom of hole = -15

EL +19.1 Rock +14.8 Depth -6.6

D Same as C hole fairly decomposed  
flanges with small gas pipes

EL +16.4 Rock -10.6 Depth -6.6

E Same as hole C but very rough surface  
flanges with small gas pipes

EL +17.3 Depth -6.5

Rock -10.3

F Same as hole C but with  
more material on top of hole  
rough surface



24

25



## Holes

1 Same as C  
 EL +24.0 Rock +19.0 Depth -42.6

EL +19.6 Rock +14.6 Depth -38.6

2 ~~Hard~~ same as C (hard)

EL +20.3 Rock +17.0 Depth -44

3 Same as C

4 Same as C EL +19.2 Rock +13.2  
 Depth -8.6  
 (chip taken very solid)

EL +19.1 Rock +14.4 Depth -47.4

5 Same as C

( Same as C. EL +19 Rock +10.2 Depth -48.6

EL 19.5 Rock +12.0 Depth -28.4  
 Same as C

8 EL +19.4 Rock +12. Depth -14.4  
 Same as C

9 Same as 8  
 EL +19.4 Rock +15 Depth -37.

10 Same as 9  
 EL +18.4 Rock +10.4 Depth -28.

11 Same as 10  
 EL +19.4 Rock +17.4 Depth -41.3

12 EL +18.4 Rock +6.4 Depth -40  
 Same as C core cut some  
 slanting joint planes and shows  
 weathering when it does so.

13 Same as 10 TC  
 EL +19.4 Rock +15.4 Depth -38.6

(W) 14 EL +18.5 Rock +1.5 Depth -27.6  
 Same as C but very highly weathered  
 feldspar white matrix creamy gray  
 bluish colored.



El +14.2 Rock +13.3 depth -42

15 Spots same as 14 (W)

16 El +14.1 Rock +3.6 depth -39.2

17

El +14.9 Rock -3.1 depth -40.4

18 Same as 15 spots

19

El +14.6 Rock +3.4 depth -42.1  
Highly weathered product of quartz, and  
limestone of E hole. Very fine, granular  
mass weathered into small pieces. Some  
pieces of rock fragments still  
remain. Light grey color.

20

El +14.9 depth -39.6

19.9 - 14.2

Dark spots same as 7 hole  
at bottom

Same as hole C not damp

22

El +13.1 Rock -1.3 depth -37.2



panoramic view of the valley from the  
near Amberg Junction, near the  
state

47) Looking north from the  
valley, the mountains are  
of a different color, and the  
panoramic view is very  
different from the one  
seen from the valley. The  
mountains are of a different  
color, and the panoramic  
view is very different from  
the one seen from the valley.

48) The view of the mountains  
from the valley is very  
different from the one  
seen from the valley. The  
mountains are of a different  
color, and the panoramic  
view is very different from  
the one seen from the valley.

49) The view of the mountains  
from the valley is very  
different from the one  
seen from the valley. The  
mountains are of a different  
color, and the panoramic  
view is very different from  
the one seen from the valley.

50) The view of the mountains  
from the valley is very  
different from the one  
seen from the valley. The  
mountains are of a different  
color, and the panoramic  
view is very different from  
the one seen from the valley.



st 5 This peak has a very shallow soil cover, a few inches to a foot or two, thin gray, green-spotted, San Pablo conglomerate. This material is somewhat weathered on top but would nevertheless make a good foundation, probably somewhat better than the gation formation and not so good as the dry rock at Balboa.

#6 Same as #5 with one piece of basaltic float on its lower shoulder which may indicate dike, but this will strengthen it rather than attenuate it.

#7. Same like conglomerate and tuff beds on lower w. slope.

#8) Basaltic dike from top of hill cuts light gray tuff &c.

9. Sandstone

10 San Pablo green spotted argill. Just westward of this is living sandstone with poranthus?

11 Clayey sandstone weak and conglomerate series overlain by 2, 3.



11th - (Barnard) info. "Lulu" - public  
name as of 1880

11th - (Barnard) info. "Lulu" - public  
name as of 1880



Sunday March 10<sup>th</sup> 1912  
Went up Ballua Hill

Succession from Gargona white tuff  
luds showing specks of ferro-mag-  
minerals and these underlying  
Conglomerate luds and clays

On top of this are foraminiferal  
limestones just same as succession  
at Wireless Station

Ballua Hill and other hills  
here are due to intrusions of  
very dark dense basalt

I note that some of these  
sharp peaks are in line  
as though they represent  
dikes which locally show  
ricks



Friday March 25<sup>th</sup> 1955 Went out  
on Highway 100 miles past  
worked deep work in that general  
vicinity

- (1) Small dark grayish brown  
limite mud shale bedded  
having many thin flake  
of mica in it. Dip 25° S.W.  
Small dark brown in color and  
dark grayish brown  
(2) Small dark brown in color  
limite mud shale bedded  
dip 15° S.W. in mass (1) is  
bedded

(3) Limestone here is quite sandy so that  
the product is a heavy sandstone  
This form well bedded and dip  
12° S.W.

#4 Like of dark basaltic rock with many  
iron bands at contact has produced  
brecciated zone at contact of 20 feet or  
more locally. Now this breccia contains  
small and larger angular fragments  
of the intruded dark rock cemented  
in a matrix of metamorphic



Mar 15 cont.

This brecciated zone is 20' wide on the S ~~and~~ W side of R.R. but is much narrower say 12' on S & E side. This brecciated zone is then locally enlarged a sort of local phenomenon. Rocks along all contacts seem to be same. This brecciated zone seems to be connecting link ~~between~~ which shows that Contractors Hill Empire bridge and other breccias are the broken crowns of big intrusions.

- (5) Coarse lava conglomerate similar to that at Cimit junction
- (6) San Pablo formation no soil on crest of this hill and outcrops almost barren
- (7) Very light weathered bedded clay here the unweathered product of which is blue gray and rather coarse and crumbly. Is derived from basic rocks and is not the same as that found near Cimit junction. Dip about 15° west and seems to be San Pablo formation.

Spec



51. Hard dark basaltic dolerite cutting  
 the coarse basic, wavy and clay beds  
 joints of this bed. The beds are  
 darkish, coarse and very basic.  
 There is a little bedding but the  
 material has been laid down  
 in rather massive form. It was  
 probably derived from melting sandstones  
 or gabbros and deposited with  
 very little sorting and weathering.  
 This coarse dark basic material seems  
 like the same as the dark basic granitic  
 beds found on the island of Linné S of  
 New England.

52. Sharp ridge one about 100 feet high  
 due to dark sandstone similar to  
 that at 18. Not exactly the same.



Sat March 16<sup>th</sup> 1912 Out on morning  
express to New Frijoles

- (1) cut 1 mile N of New Frijoles Conglomerate  
layers with inter beds of wayke  
pebbles and cobbles in this congl.  
are mostly of the coarse hornblende - por-  
phyry type showing very little quartz. The fine  
bedded wayke shows some hornblende  
fragments but very little quartz so  
that it is much less quartzitic  
than the wayke found at Limón  
junction. Still these rounded  
boulders and cobbles seem to be  
of the same general character  
as those in lower part of that  
wayke so will classify this  
same as that.

Dip  $40^{\circ}$  S. About 300' of beds  
exposed in this 1st cut. Largest  
boulders noted about 2 ft in diam.

- (2) Light colored clay considerably weathered  
and shows little bedding. This would probably  
all have been classed in with the conglomerate  
series although it seems to be under it.

- (3) Gray coarse sandy marl shows many  
foraminifera and is same as that  
found near Bohio. Fairly well  
bedded & dip  $40^{\circ}$  SW



(1) East base much altered like mass  
or rather seems like sort of core  
or neck for it appears on the E side of  
railroad only. Seems like a breast or  
more basic for it shows considerable  
serpentinization with secondary talc  
epidote etc. further of about 1910

B.M. on culvert 101.10 Is 350 yards  
Almost fills the space between culverts  
1910 on S and 1909 on N side

5 ft. 1000 ft. on W side of cut

a dark basic breccia zone shows up  
in cut. This is evidence that the  
hill which runs up west of the cut  
here (practically an embankment for  
east here) is due to an elongated  
plug of this breccia and that the  
outer brecciated zone of cut  
shows in the cut

Succession at bridge (about 1/2 mile)

1. Breccia
2. Breccia (up to 100 ft. thick)
3. Brecciated zone of cut
4. Breccia (up to 100 ft. thick)



Monday March 18th went out to New Taipei  
on morning train

- (5) Foraminiferal clay beds gray and coarse same as (3) and same as at Peking. R.R. cut immediately west of last place to New Taipei almost at the switch leading to Taipei. With these coarse grayish foraminiferal <sup>mud or wackes</sup> clays, are some very light-colored highly weathered clays and some light colored sandy clays or soft sandstones. They all dip South eastward about  $65^\circ$ .
- (6) Highly weathered coarse conglomerate here under the clays now this conglomerate seems blue below the foraminiferal gray beds so it may be much older than the conglomerate at (1) a mile or so here.
- (7) This great wide comparatively flat bottom here shows occasional outcrops of limestone and found a small local area of basic andesite float. Much however good dark loam soil but soil is shallow. several sugar cane plantations (small ones) in this flat.
- (8) On relocated line say 3 miles S of New Taipei big mass of ~~con~~ slightly porphyritic Andesite on small outcrops here seems to cut clay and clay is



March 19th cont

warded by limestone. Some of the same kind of limestone, however, as found at 1/4, a mile away here. It is just S of the road at 1/4.

(9) Another fossiliferous sandstone, mostly of 1/4, about 5' thick. It is mostly limestone.

(10) Some very hard, gray limestone.

(11) Some shales, some with thin layers of sandstone. The shales are mostly gray, some with thin layers of sandstone. The sandstone is mostly gray, some with thin layers of sandstone. The shales are mostly gray, some with thin layers of sandstone. The sandstone is mostly gray, some with thin layers of sandstone.

(12) A very fine, light-colored limestone. It is mostly gray, some with thin layers of sandstone. The sandstone is mostly gray, some with thin layers of sandstone. The shales are mostly gray, some with thin layers of sandstone. The sandstone is mostly gray, some with thin layers of sandstone.

(13) At one place gray to dark gray shale. There are also some badly preserved fossiliferous sandstones. The sandstone is mostly gray, some with thin layers of sandstone. The shales are mostly gray, some with thin layers of sandstone. The sandstone is mostly gray, some with thin layers of sandstone.



Page 20  
5  
10

14/ Cut of dirt - clay, basic looking  
fossiliferous marl - fossiliferous  
very abundant - Splice stopped  
at top. Last shipment see p. 10  
or about it. Location above  
brown 15' near base of fossiliferous  
Sedimentary marl as found in cut  
bottom hundred feet to the west

From stream it is seen 15' to  
over 100' deep. The cut  
shows some very fine  
fossiliferous marl - chert  
bedding but without  
topography

15 At 15' 20' find old mine and very  
large of - fossiliferous marl  
more than a hundred feet  
high. The composition is  
mostly sedimentary but the sand and  
clay is at the base with  
unstratified sandstone

The composition is of  
fossiliferous marl - chert  
bedding but without  
topography







(4) Bangladeshi all along here shows in  
all



March 20 out on express to Dump 6

- (5) Dump 6 100 yds north of lower here conglomerate bank cut by dike (basic) about 3 feet thick. This conglomerate all along here contains considerable fine material and gravel cobble and boulders up to 30" in diam. some rough bedding with dip mostly approx parallel to surface of ridge cut through cobbles and boulders mostly dark and basic with some few fragments showing hornblende nodules feldspar etc.

about 1000' S of St 1195

Spec This conglomerate extends far in eastward of track as shown where dump extends in  $\frac{1}{3}$  mile to cut in slope which shows same conglomerate

St 1150 Same conglomerate but along here there are some angular and subangular fragments however it seems to be all the same general series. This same formation extends right



up to Cimuto Junct.

- (1) Bailamons good big outcrops of limestone all along there. Dip about  $10^{\circ}$  W. L.S. shows some sea urchins & and locally is gray and sandy on fracture. Spic shows brachiopods seems like same L.S. as is found at Las Cascadas & up Chapco. Locally shows X bedding.

- (2) Congl begins here L.S. does not go up above 75 ft or less and congl sticks up through NW.

- (3) Just S of Mamei in RR cut around curve 500 from switch big mass of hard dark Basalt or Gabbro in contact with gray foraminiferal limestone and some light weathered beds with lentic fragments and some small fragments of ferro-mag. Crystals, and this seems to overlie the conglomerate series. Relations are not very clear here. Muta - has been



very considerable probably  
noticeable for 20' or so.

Spec's showing fossils

1/2 mile N of Gargona

Thursday March 21 / 14

Running Express to Gargona

- (1) Hard but much weathered basic clay beds  
overlain by conglomerate beds where the  
pebbles are well rounded and  
comparatively fresh. This series of gravel  
and clays is certainly quite young  
and can be differentiated from  
the older massive conglomerates  
(probably?)
- (2) Hill in here a ridge about 500  
high shows angular and sub-angular  
fragments of hard dark basalt or  
gabbro. See no definite evidence  
of a dike but there may be one  
here. ~~the dike is not~~
- (3) Mass of boulders cobbles &c rounded  
to subangular and some almost  
angular
- (4) Mass of coarse decomposed conglomerate  
angular to rounded
- (5) matrix of fine light colored sand  
interbedded with fine magenta &c  
unconformable on (4)



March 21st Sunday  
 at home

March 22nd Monday  
 at home

(1) In the morning all along has been limited  
 temperature not above 40° - 50° in  
 morning of day which may be  
 low and being in light rain  
 and in some the weather  
 very cloudy. At night  
 this general weather  
 with fine information and  
 some small rain.  
 From 5 to 6 p.m. the  
 dark clouds have been  
 passing over the mountains  
 with a light rain falling  
 which is lighter and of  
 day - temperature fairly good  
 and the rain of the night  
 ended.

(2) up to the top of the mountain  
 very warm and sunny  
 with some clouds in the  
 distance. The rain has  
 not yet begun to fall  
 but it is expected to do so  
 in the afternoon.



(3) This hill seems to be about 400 high. On top of it I find fragments of hard Liassic sandy, weathered ludy light colored weathered wayke also some large fragments of the usual basic basalt or gabbro. This is most difficult to classify. I am not certain whether it represents the younger Conglomerate bed but it probably does. It does then probably only the top 100' represents the younger while below that the older conglomerates are in place.

(4) Conglomerate beds fine & clayey underlying darker beds of congl. This seems to be all younger congl. and some light clay beds.

5- Two dikes here like this seemingly coming from the same source and cutting conglomerates and some agglomerate looking dark rough stratified material. These two dikes are weathered rather gray and locally might be mistaken for material found on top of hill at (3).



200 feet south of 51 find big *Trinacra*  
 more and less like, a few bryozoa  
 having possibly a little softer surface  
 of more calcareous material.

This *Trinacra* was some 100  
 feet up the section  
 by which the *Trinacra* was  
 found just as the *Trinacra* was  
 noted. One small *Trinacra* was  
 found of these *Trinacra* fossils  
 especially near center are  
 quite rich with *Trinacra*.



Saturday March 23<sup>d</sup> up to town  
in morning

Cruiser is built on a gravel bar  
only 32 feet above the mean low water  
level. The water here is very shallow  
and the latter part of the  
day for some distance  
to the <sup>12</sup> and beyond  
the river bank.

In the afternoon I went to the  
landing and back to the  
city and spent the evening  
with my family. I was  
very much interested in  
the people and the  
general appearance of the  
place. The people are  
just what you would expect  
to find in a frontier town.



Monday March 21<sup>st</sup> 1900  
 Found Carboniferous fossils in the  
 limestone.

Tuesday March 22<sup>nd</sup> 1900  
 Worked on the fossils.

(1) Out 4 miles west of station. Concretion  
 looks some like a fossil. It is a  
 15 foot wide which is a very large  
 one.

(2) Spore bags found in the  
 fossil. They are very small  
 and are in the shape of a  
 sphere.

(3) Basaltic like cutting in the  
 corral in the east.

(4) Highly magnified fossil  
 which is a very large  
 one. It is a very large  
 one and is a very large  
 one. It is a very large  
 one and is a very large  
 one.

(5) Fossil in the  
 corral in the east.



# Volcanic Breccia

- (6) Light colored lava flows here similar to that found in the section on the west side. Seems like an outcrop of pitted edge or possibly an elongated neck 110' wide.
- (7) Lava breccia flows here are cut. Some are found app. in volcanic section 300 ft. wide.



March 28 / La Brea Coal  
mine.

Found old holes & pits but  
no surface indications  
all grown up with brush.  
In stream bed by mouth  
all large angular pieces  
of boulders.

At La Brea St gravel  
& clay of latest Conglomerate.  
At Barlow = bridge head  
dip away from San Pablo  
formation outcrop to top  
of bank.



June 8th 1914 Out on  
 ridge west of Baton Rouge  
 Δ T. St. bears N79 E to  
 sharp curve out of relocated line  
 1/3 mile S. of Baton.  
 and S33 E to big curve in canal  
 Δ Baton triangulation St

Fault trends ~~SE~~ <sup>NW</sup> or shear zone Baton on E  
 Coquina on W. Extensive  
 fracturing

Fossil lat II from new  
 excavations west end of dam  
 Baton some pebbles along  
 contact but no noticeable  
 unconformity



Monday June 10 to B Oluspo through  
 out fragments in B O Breccia mostly  
~~all~~ rounded but a few subangular  
 all seem to be basic and granular  
 all nearly same composition but  
 much weathered comparatively  
 along some of the major fissures rock  
 has turned whitish from water seepage  
 TC perhaps hydrothermal action  
 most of pebbles same as coarse  
 dark basic greenish lava see  
 spec + This hydrothermal? action  
 has left considerable calcite and  
 serpentinized locally some of the  
 shield rock very probably  
 hydrothermal see no quartz  
 a lot of calcite along nearly all fissures  
 in sedimentary geyser beds also a  
 lot of calcite as concretions



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The wet weather brings  
the water down to the  
level of the river. The  
water is very muddy and  
the current is very strong.  
The water is very muddy and  
the current is very strong.

The water is very muddy and  
the current is very strong.  
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Amelia (Sister of the  
Rev. Mr. Thos. T. T. T.)  
has been in the  
house for the last week.

35

Amelia

Amelia

Amelia

Amelia



